

# **SUBCHAPTER 9**

## **SULFUR IN FUELS**

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## **NJAC 7:27-9**

### **Reduction in sulfur content of commercial fuel oil**

**#2 oil**

**#4 oil**

**#6 oil**

## #2 DISTILLATE OIL



**2,000 - 3,000**

**ppm**

Varies by zone



**500**

**ppm**

NEW!

No more zones



**15**

**ppm**

## COMPARISON TO OTHER INDUSTRIES

<b>On-road diesel</b>	<b>2010</b>	<b>15 ppm</b>
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<b>Off-road diesel</b>	<b>2010</b>	<b>15 ppm</b>
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<b>Locomotives</b>	<b>2012</b>	<b>15 ppm</b>
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<b>Marine</b>	<b>2012</b>	<b>15 ppm</b>
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# NOMENCLATURE

**LOW sulfur fuel = 500 ppm (2014)**

**ULTRA LOW sulfur fuel = 15 ppm (2016)**

**July 1<sup>st</sup>**

**2014**

**/**

**2016**

## #4 OIL



**2,000 - 3,000**

**ppm**

Varies by zone



**2,500**

**ppm**

NEW!

No more zones



**same**

**ppm**



## #6 OIL



**3,000 - 20,000**

**ppm**



**3,000 zones 4 & 6**

**ppm**

**5,000 all other**

**ppm**



**same**

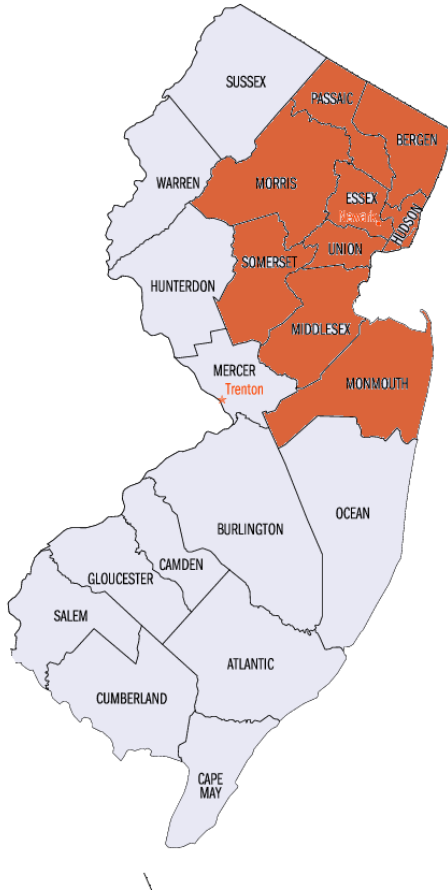
**ppm**

Keeping

Some

Zones

# Zone 4

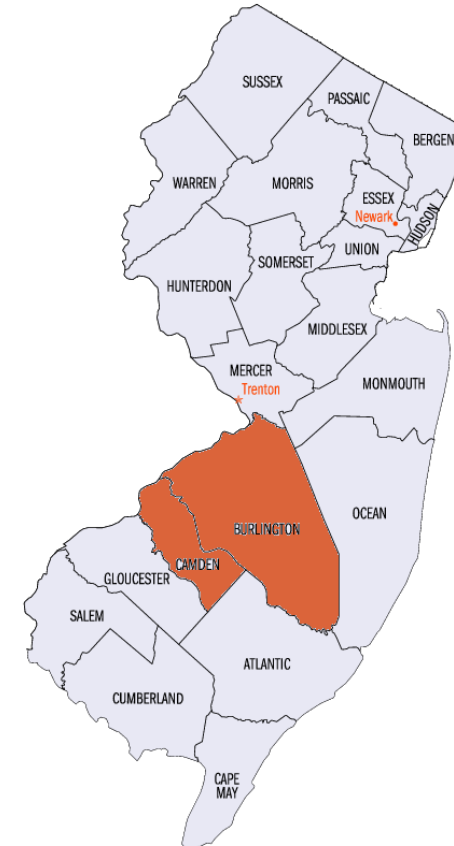


Bergen	Essex	Hudson
Morris	Passaic	Union
Middlesex	Monmouth	Somerset

## Zone 6

Burl Co:        Bass River        Shamong  
                  Tabernacle     Woodland  
                  Washington Twp  
                  Southampton

Camden Co:     Waterford



# **RECAP**

<b>#2 oil</b>	<b>500 ppm (2014)</b>	<b>15 ppm (2016)</b>	<b>no more zones</b>
<b>#4 oil</b>	<b>2,500 ppm (2014)</b>	<b>--- same (2016) ---</b>	<b>no more zones</b>
<b>#6 oil</b>	<b>3,000 ppm (2014) 5,000 ppm (2014)</b>	<b>--- same (2016) --- --- same (2016) ---</b>	<b>keeping zones 4 &amp; 6 all other zones</b>

## **Exception #1**

**Can use up existing stock**

***“ Fuel stored in New Jersey that met the applicable maximum sulfur content standard of Tables 1A or 1B of this section at the time it was stored in New Jersey may be used in New Jersey after the operative date of the applicable standard in 1B.”***

***{NJAC 7:27-9.2(a) & (b)}***

# **Exception #2**

## **1 yr refinery extension**

***Proposed. Not yet adopted.***

### ***Refinery can APPLY for 1yr extension***

*they must already have an upcoming shutdown scheduled within the next year*

*want to combine their planned shutdown w/ the %S switch-over shutdown*

*NOT an automatic ext.*

*must apply/obtain approval*

### ***Minimize downtime at refineries***

*Cost savings*

*Maintain adequate fuel supplies*

*Minimize emissions (ref run most efficient at full load, not during startup/shutdown)*

## **Other Impacts**

***Possible NOx reductions***

***may help comply with sub19 NOX RACT,  
especially those close to the limit***

***Small reduction, 5-10%***

***Sulfur removal process also removes some fuel-bound N***

*Source: Low Sulfur Heating Oil: Evaluating the Impacts on Consumers,  
Consumer Energy Council of America, September 2003*

# Other Impacts





# **RECAP: WHAT MUST** **YOU DO**

- ***Start buying lower sulfur fuel    2014    2016***

*Can use up existing stock*

*Possible 1yr refinery extension*

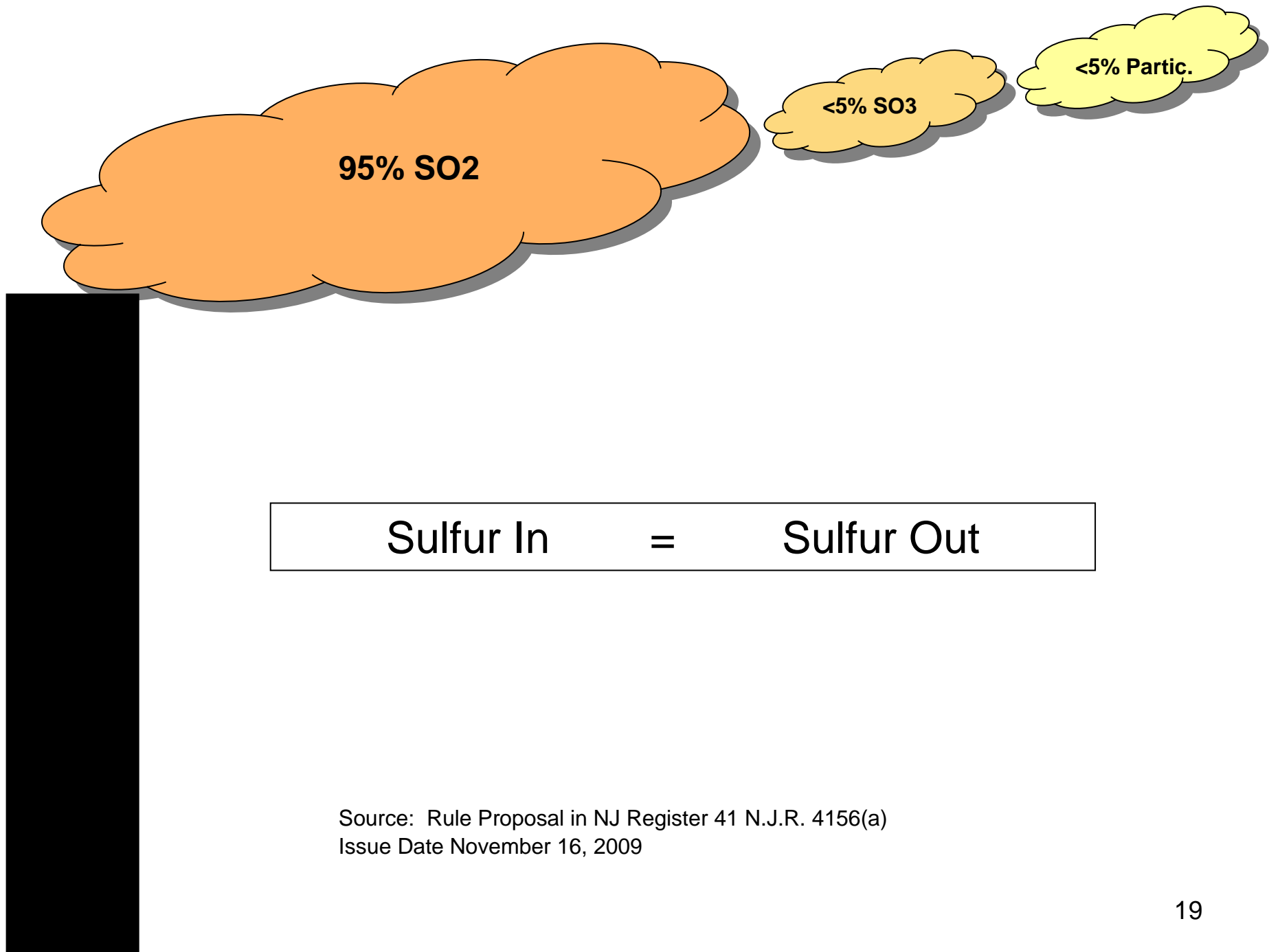
- ***Keep records from fuel supplier to prove %S***

*update MSDS*

*get current Cert of Analysis.*

*%S not usually on receipts, often have to ask for it.*

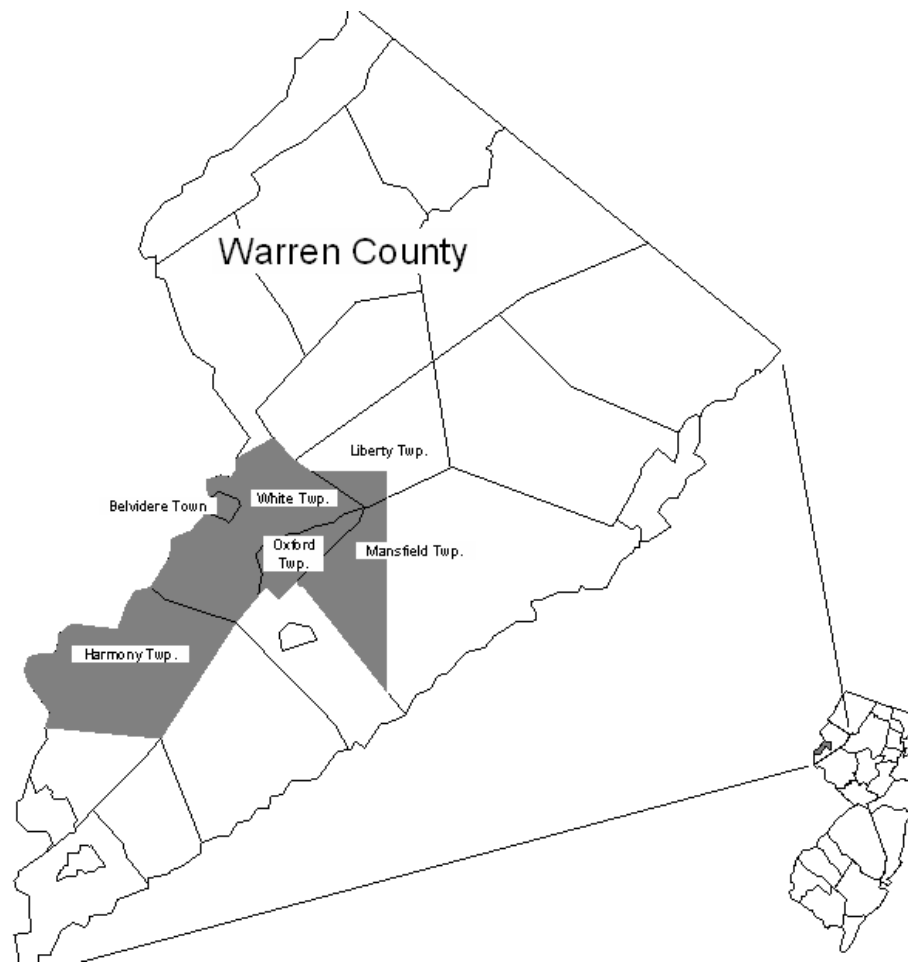
Why  
The  
Change ?



Source: Rule Proposal in NJ Register 41 N.J.R. 4156(a)  
Issue Date November 16, 2009

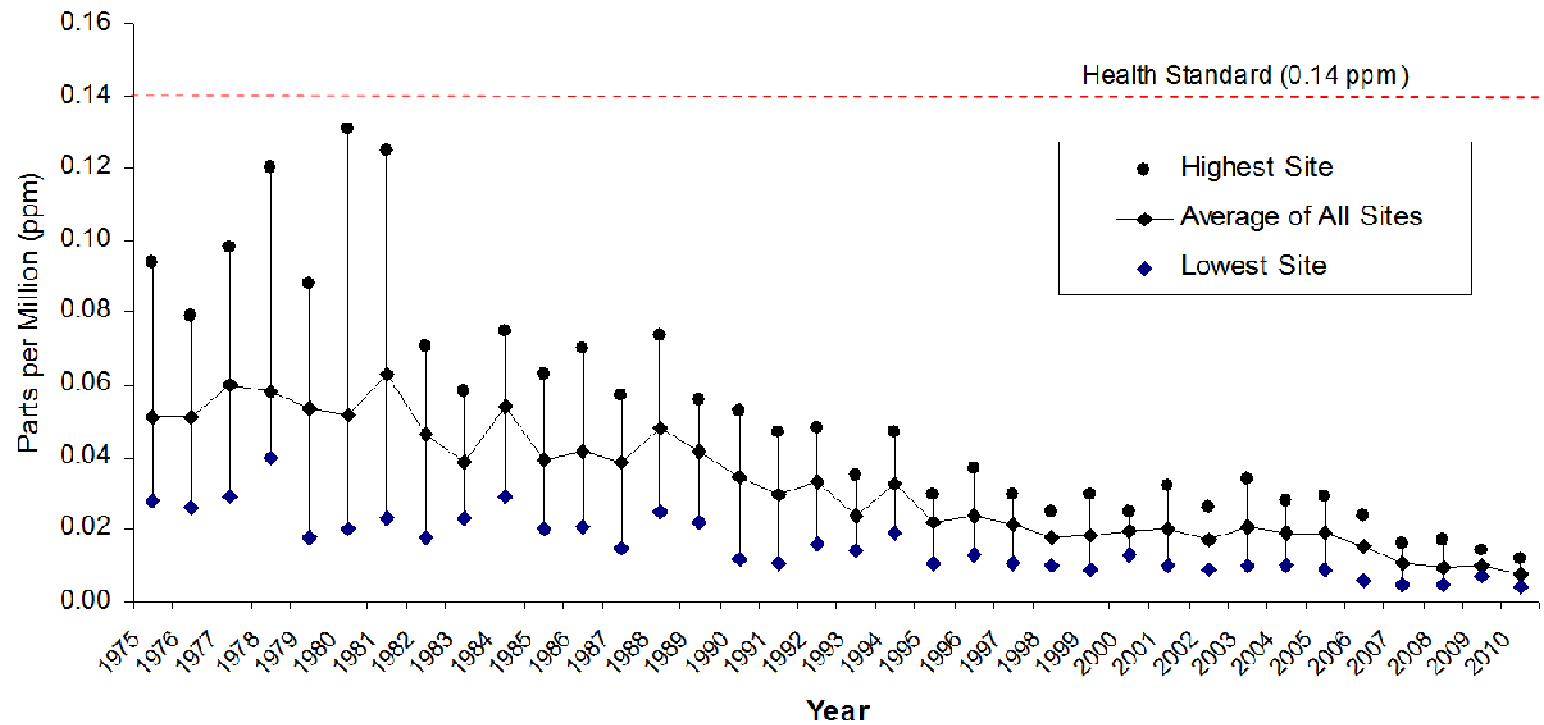
## **Why are we doing this?**

- 1) Reduce SOx Pollution**
- 2) Reduce Particulate Pollution** (direct particulate)
- 3) Improve Haze** (indirect particulate)



NJ's only non-attainment SOx area

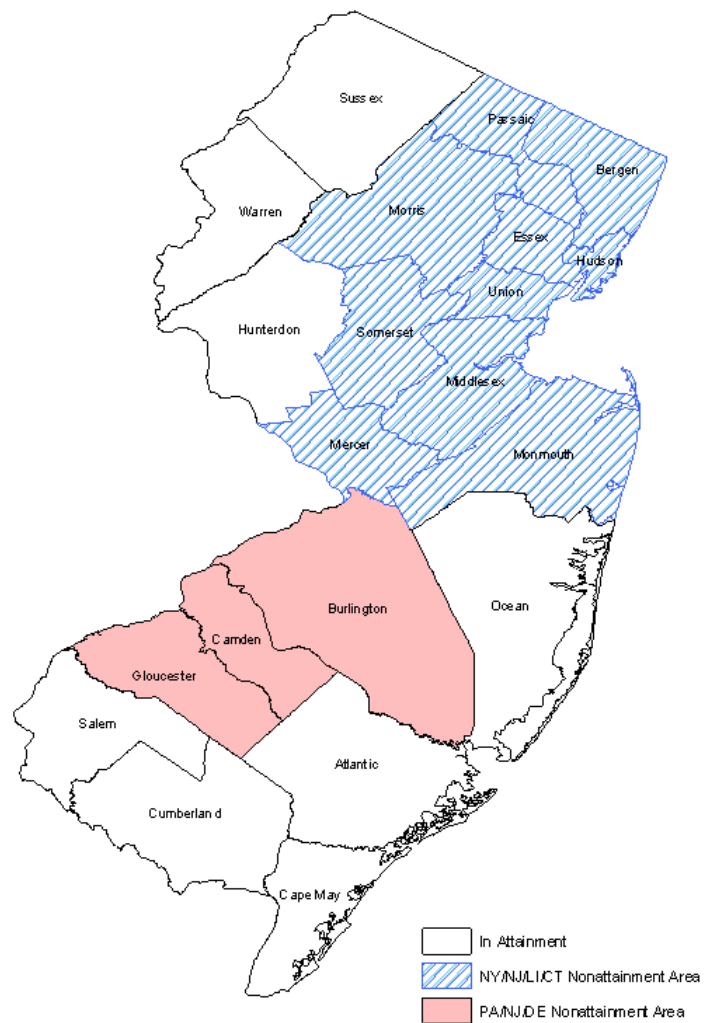
1975 - 2010 Sulfur Dioxide Concentrations  
Second Highest Daily Average  
Parts Per Million (ppm)



## **Benefit 2:        Particulate reduction**

- Much of NJ in particulate non-attainment**
- Part of NJ's SIP revision to achieve EPA's air quality standards**

## New Jersey Annual Fine Particulate Matter (PM<sub>2.5</sub>) Nonattainment Areas





**Benefit 3:**

**Improve Haze**

# Haze

- **voluntary: MANE-VU regional organization**

Mid-Atlantic / NorthEast Visibility Union

- **mandatory: EPA APCA Amendments 1990**

# **FINAL RECAP**

- ***Sulfur In = Sulfur Out***
- ***Start buying lower sulfur fuel 2014 2016***
  - Can use up existing stock*
  - Possible 1yr refinery extension*
- ***Keep records from fuel supplier to prove %S***
  - update MSDS*
  - get current Cert of Analysis.*
  - %S not usually on receipts, often have to ask for it.*

# FINAL RECAP

#2 oil	500 ppm (2014)	15 ppm (2016)	no more zones
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#4 oil	2,500 ppm (2014)	--- same (2016) ---	no more zones
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#6 oil	3,000 ppm (2014)	--- same (2016) ---	keeping zones 4 & 6
	5,000 ppm (2014)	--- same (2016) ---	all other zones

**End**

**~ Thank you ~**